METHOD AND APPARATUS FOR IMPROVING PET DETECTORS

ABSTRACT OF THE DISCLOSURE

The present invention is directed to a system, method and software program product for implementing an efficient, low-radiation 3-D Complete-Body-Screening (3D-CBS) medical imaging device which combines the benefits of the functional imaging capability of PET with those of the anatomical imaging capability of CT. The present invention enables a different detector assembly, and together they enable execution of more complex algorithms measuring more accurately the information obtained from the collision of the photon with the detector. The present invention overcomes input and coincidence bottlenecks inherent in the prior art by implementing a massively parallel, layered architecture with processor separate stacks for handling each channel. The prior art coincidence bottleneck is overcome by limiting coincidence comparisons to those with a time stamp occurring within a predefined time window. The increased efficiency provides the bandwidth necessary for increasing the throughput even more by extending the FOV to over one meter in length and the execution of even more complex algorithms.